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Yukinobu Konishi

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT

PAPER NUMBER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/082,984
Filing Date: February 25, 2002
Appellant(s): KONISHI ET AL.

Milton Oliver
For Appellant

EXAMINER'S ANSWER

This is in response to the revised appeal brief filed on December 01, 2005 appealing from the Office action mailed December 08, 2003.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,771,083	FUJIHARA ET AL	6-1998
5,724,107	NISHIKAWA ET AL	5-1998

5,546,204

ELLIS

8-1996

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujihara et al., (U.S Patent No. 5,771,083, from hereafter "Fujihara") in view of Nishikawa et al. (U.S. Patent No. 5,724,107, from hereafter "Nishikawa") and Ellis (U.S Patent No. 5,546,204).

As to claim 1, Fujihara discloses a liquid crystal display (LCD) having a TFT substrate (fig. 2, ref 1) and a counter substrate (col. 1, lines 41-43) with liquid crystal

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layer (col. 1, lines 41-43), where the TFT array substrate has a display area and a terminal forming area such that the display area has a pixel electrode (fig. 1, ref 5), a switching element (fig. 1, ref. 8), a gate line (fig. 1, ref. 2) and a source line (fig. 1, ref. 3).

However, the reference fails to specifically disclose a terminal forming area with a terminal electrode for connecting to the gate or source line to an external signal source, such that the first metallic line (fig. 2, ref. 3, 7) and the second metallic line (fig. 2, ref. 2) are both connected to the terminal electrode via respective contact holes (fig. 2, ref. 13) arranged below the terminal electrode, and an insulating layer (fig. 2, ref. 9) is interposed between the first metallic line and the second metallic line. Furthermore, the reference fails to specifically disclose a liquid crystal layer interposed between the TFT substrate and counter substrate.

Nishikawa discloses a terminal forming area with a terminal electrode for connecting to the gate or source line to an external signal source (fig. 6, ref. 14c).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have positioned the liquid crystal layer between the two substrate layers since one would recognize that as well known (Fujihara, col. 1, lines 41-43). Furthermore, Furthermore, Ellis discloses a TFT matrix LCD with a liquid crystal layer between a TFT substrate and counter substrate (col. 2, lines 7-21; fig. 5), which provides a normalized viewing pixel, ultimately improving aperture ratio and increasing display reliability (col. 2, line 64 – col. 3, line 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have a terminal forming area with a terminal electrode for connecting to the gate or source line to an external signal source, such that the first metallic line and the second metallic line are both connected to the terminal electrode via respective contact holes arranged below the terminal electrode, and an insulating layer is interposed between the first metallic line and the second metallic line since one would be motivated to provide control over the storage capacitor (abstract). This ultimately improves aperture ratio, increases storage capacitance, and produces good images (col. 3, lines 22-25).

Regarding claims 2-6, Fujihara discloses the LCD device as recited above where the first metallic line is made from the same layer as the source line (fig. 2, ref. 3, 7) and the second metallic layer is made from the same layer as the gate line (fig. 2, ref. 2), such that the first metallic line is connected to the source line and the second metallic line is lower than the first metallic line (fig. 2 and 3).

(10) Response to Argument

Appellant has four main arguments: (1) that the terminal electrode of Nishikawa is for different purpose than that of the claimed invention, (2) that the insulating layer between the metallic lines is not positioned for the same mechanical protection purpose as suggested by Appellant's invention, (3) that the recitation "to minimize exfoliation of the second metallic line, and short circuits resulting from such exfoliation" is a functional effect and not a product-by-process limitation, and (4) that there is no motivation to

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combine these prior art references. However, Examiner disagrees and will address each alignment below.

With regard to the first argument, Appellant argues that the terminal electrode of Nishikawa is for a different purpose than that of the claimed invention. Appellant asserts that the terminal electrode (fig. 6, ref. 14c; col. 7, line 52 – col. 8, line 8) of Nishikawa does not connect to source or gate lines, but rather to storage capacitors and “thus is apparently intended for a different purpose than---the present invention.” However, Examiner disagrees. First, the terminal electrode of Nishikawa is connected not only to a storage capacitor, but also to the source and gate lines, albeit indirectly. Nowhere, in the claims in this “connection” described as being in direct contact. As such, Nishikawa’s terminal electrode, as depicted in fig. 6, does connect the gate and source lines to an external source, which in this case is the storage capacitor. Furthermore, Appellant argues that the purpose of its terminal electrode is to cause the TFT to switch the pixel electrode, but nowhere in the language of the claims is this purpose discussed. Therefore, Appellants argument is not found persuasive.

As to the second argument, Appellant argues that the insulating layer between the metallic lines is not positioned for a mechanical protection purposes as suggested by Appellant’s invention. Appellant asserts that the motivation “to provide control over the storage capacitor” when position the insulating layer (fig. 2, ref. 9, 10) of Fujihara is not of the same purpose of the claimed invention, which is to provide mechanical protection. However, Examiner disagrees. First, it is noted that the features upon which applicant relies (mechanical protection) are not recited in the rejected claim(s). Although

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the claims are interpreted in light of the specification, limitations from the specification are read into the claims. See *In re Van Genus*, 988 F.2D 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Second, even if such features were recited, the fact that applicant has recognized another advantage which would flow naturally from the following suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In this case, the mechanical purpose behind Appellant's invention is not the only reason to provide such a combination. Third, even if such a motivation were "not of such importance," as alleged by Appellant, the Fujihara reference by itself clearly teaches the insulating layer (fig. 2, ref. 9, 10) already existing between the first and second metallic layers (fig. 2, ref. 2, 3, 7). As a result, Applicant's argument regarding its mechanical protection purpose is not persuasive.

With regard to the third argument, Appellant argues that the recitation "to minimize exfoliation of the second metallic line, and short circuits resulting from such exfoliation" is a functional effect and not a product-by-process limitation. However, Examiner disagrees. First, Appellant does not include the entire recitation that is in question. The recitation in the claims actually states, "the insulating layer ---- serves, *during fabrication of said display*, to minimize exfoliation of the second metallic line, and short circuits resulting from such exfoliation" (italic included by Examiner for emphasis). The claim language clearly indicates that Appellant's "functional effect" applies "during fabrication of said display." As a result, this recitation clearly qualifies as a process-by-product limitation. Even though product-by-process limitations are recognized as limited by and

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defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). See also MPEP 2113. In this case, it is clear Claim 1 is a device claim and such recitations pertaining to "fabrication of said display" is patentable. Therefore, Appellant's product-by-process argument is not found to be persuasive as well.

Finally, as to the fourth argument, Appellant asserts that there is no motivation to combine these prior art references because "none of the (prior art references) mention the problem of metal shavings resulting from chamfering the edge of the substrate to remove the short-circuit ring, once the ring has served its purpose of protecting the (TFTs) during the manufacturing process" and "none of these references recognize the problem of exfoliation leading to short circuits, and Appropriate placement of the insulating layer" (Appellant's Brief, p. 6-7). However, Examiner disagrees. First, "the problem of metal shavings, " which Appellant goes to great length to discuss, is nowhere found in the claims. And even if it were included, Appellant makes it clear that the purpose in resolving the problem of metal shavings is "during the manufacturing process." Once again, such a recitation would clearly be a product-by-process limitation and would therefore not be given any patentable weight for the reasons stated above. Furthermore, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for

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patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In our situation, the Nishikawa and Ellis references each provide more than adequate motivation to combine their disclosed elements with the invention of Fujihara – to provide a normalized viewing pixel, ultimately improving aperture ratio and increasing display reliability (Ellis, col. 2, line 64 – col. 3, line 3) and to provide control over the storage capacitor (Nishikawa, abstract) for improving aperture ratio, increasing storage capacitance, and generating optimized images (Nishikawa, col. 3, lines 22-25). Thus, Appellant's arguments are also not found persuasive.

For the above reasons, it is believed that the prior art of record is sufficient and valid in their teachings and combination. Therefore, the rejections should be sustained.

(11) Related Proceeding(s) Appendix

Copies of the court or Board decision(s) identified in the Related Appeals and Interferences section of this examiner's answer are provided herein.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

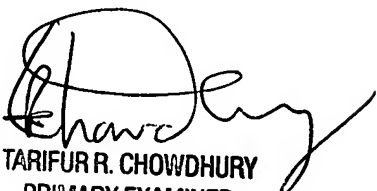
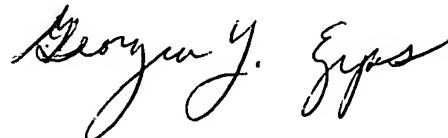
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